the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.--

In the Claims

Please amend claims 1, 3, and 4-6, and add new claims 10-13 as follows:

1. A sensor including:

[(1)] a resistive element having a top surface electrode and a bottom surface electrode;

[(2)] a sensing element for sensing energy from outside and generating an electrical signal;

[(3)] a field effect transistor element in which a gate electrode is formed on [the] a rear surface of [the] a chip containing said field effect transistor element; and

[(4)] a substrate having a first electrode, a second electrode, and a third electrode on the top surface of said substrate;

wherein

the bottom surface electrode of said resistive element is electrically connected with the first electrode of said substrate;

the gate electrode of said field effect transistor element is electrically connected to a portion of the top surface electrode of said resistive element by a conductive material [in such a way that the gate electrode and a portion of the top surface electrode of said resistive element coincides];

one of the electrodes of said sensor element is electrically connected with a portion of the top surface electrode of said resistive element;

a source electrode and a drain electrode of said field effect transistor element are respectively electrically connected with the second electrode and the third electrode on said substrate; and

the other electrode of said sensing element is electrically connected with the first electrode on said substrate.

3. The sensor of claim 1 wherein the top surface electrode and the bottom surface electrode of said resistive element contain at [lease] least one of chromium, tin, and indium.

4. A method of manufacturing a sensor, said sensor including:

[(1)] a resistive element having a top surface electrode and a bottom surface electrode;

[(2)] a sensing element for sensing energy from outside and generating an electrical signal;

[(3)] a field effect transistor element on which a gate electrode is formed on [the] a rear surface of [the] a chip containing said field effect transistor element; and

[(4)] a substrate having a first electrode, a second electrode, and a third electrode on the top surface of said substrate;

said method comprising the steps of:

electrically connecting the bottom surface electrode of said resistive element with the first electrode of said substrate;

electrically connecting the gate electrode of said field effect transistor element to a portion of the top surface electrode of said resistive element by a conductive material [in such a way that the gate electrode and a portion of the top surface electrode of said resistive element coincides];

electrically connecting one of the electrodes of said sensing element with a portion of the top surface electrode of said resistive element;

electrically connecting a source electrode and a drain electrode of said field effect transistor element with the second electrode and the third electrode on said substrate, respectively; and

electrically connecting the other electrode of said sensing element with the first electrode on said substrate.

5. The method of manufacturing a sensor of claim 4 wherein the method of manufacturing said resistive element comprises the steps of:

forming an electrode over the entire top and bottom surfaces of a large-area flat resistor body in advance;

measuring its resistance value; and

cutting said resistor body to predetermined dimensions based on the measured resistance value to obtain a predetermined resistance value.

6. The method of manufacturing a [resistive element] sensor of claim 5 wherein said resistor body is formed by sintering at a temperature at which the water absorption rate becomes 1% or [below] less.